December 2020

Global Trends in Tobacco Cigarette Use among Adolescents: Prevalence of Use and Evidence Based Cessation Interventions

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Abstract

Tobacco use remains a global problem, and as a demographic group, adolescents are at a high risk of its adverse effects. In addition, disparities exist in strategies to address tobacco control, particularly among youth from low-socioeconomic backgrounds. The health risks associated with tobacco use provide a compelling reason for all nations to prioritize addressing and regulating its use and providing sustainable funding sources for training healthcare professionals and others under Article 14 of the World Health Framework Convention on Tobacco Control (FCTC). This article has four primary goals: (1) to provide an overview of the 2005 World Health Organization's international public health treaty - the World Health FCTC; (2) to examine the prevalence of tobacco cigarette use among adolescents globally and the impact of cultural/social influences on use; (3) to provide an overview of current evidence based smoking cessations interventions that have shown success with this group; and (4) to discuss the overarching social work implications and practice when working with adolescents who use tobacco cigarettes.

Keywords: global, adolescents, tobacco use, cigarettes, intervention

Introduction

Potential health hazards related to tobacco cigarette use are well documented (Cho et al., 2018; Steptoe et al., 2002; WHO, 2011), but tobacco cigarette usage continues on a global scale despite scientific facts. Efforts to reduce tobacco cigarette use often focus on prevention specifically within identified populations, such as adolescents. Tobacco cigarette use in adults can lead to serious health problems, but use among adolescents, whose bodies and brains are still developing, can be even more damaging. Tobacco cigarette use in adolescents' results in damage to all tissue and organs and can affect physical and cognitive development (Macinko & Silver, 2014). This concept paper has four primary goals: to provide an overview of the 2005 World Health Organization's international public health treaty - the World Health Framework Convention on Tobacco Control (FCTC); to examine the prevalence of tobacco cigarette use among adolescents globally and the impact of cultural/social influences on use; to provide an overview of current evidence based smoking cessations interventions that have shown success with this

group, and discuss the overarching social work implications and practice when working with adolescents who use tobacco cigarettes.

Overview: 2005 World Health Framework Convention on Tobacco Control

In 2005, The World Health Organization (WHO) signed the world's first international public health treaty, the World Health Framework Convention on Tobacco Control (FCTC). The FCTC aimed to promote policies that prevent tobacco use initiation and help existing tobacco users quit, thereby reducing the health consequences. Article 14 of the FCTC provides directions for countries implementing effective evidence-based counseling and medication programs to help tobacco users cease smoking. A Conference of the Parties introduced guidelines for implementing Article 14 of the FCTC to the FCTC in 2010 (WHO, 2010). The FCTC guidelines recommended that countries develop and implement training standards for tobacco dependence treatment and cessation. Furthermore, the guidelines specified a focus on the healthcare systems workers that deliver these services (WHO, 2010; Kruse et al., 2016).

According to Kruse et al. (2016), one of the key resources needed to implement Article 14 of the FCTC is sufficient numbers of trained healthcare workers to assess tobacco use and deliver brief advice about tobacco cessation. The researchers indicated that referrals to specialized treatment to support tobacco cessation require healthcare workers and others trained to provide behavioral and pharmacologic support.

Based on the gaps in knowledge identified in their literature review, Kruse et al. (2016) conducted an international survey (84 countries) on tobacco dependence training programs to investigate to what extent countries were implementing the World Health Organization's Article 14 of the FCTC. The study measured training program prevalence, participants, and challenges faced. The researchers reported that 79% of the countries had training programs, and 21% (mostly Low and Middle-income Countries (LMICs)) reported no training programs. Most programs (54%) cited funding challenges. In addition, higher-income countries were more likely to report government assistance for programs.

In contrast, programs in lower-income countries (where 80% of smokers live) relied more on non-governmental organizations for funding. The authors reported that the shortage of training programs represents a disparity in the availability of training

programs based on income level. This disparity, according to the authors, "compromises the ability of many LIMC's to deliver assistance to help smokers to quit and to meet their obligations of the Article 14 of the FCTC" (Kruse et al., 2016). The authors concluded that funding and other resources are needed to ensure that healthcare worker educational programs include training that is appropriate and deliverable (Kruse et al., 2016).

Prevalence: Tobacco Cigarette Use among Adolescents and Impact of Culture

Due to differences in health-related reporting data among countries, it is difficult to assess adolescent tobacco cigarette use and trends on a global scale (Asma et al., 2014). In an effort to examine adolescent use globally, the Global Youth Tobacco Survey (GYST) was utilized by the Centers for Disease Control (CDC) from 2012-2015, resulting in data from 61 countries. The survey was designed to study not only pervasiveness of use but also the desire to quit smoking. Findings suggest that globally, adolescent males are more likely than females to use tobacco cigarettes. However, there are several other factors such as, availability of cigarettes and peer group approval of use. Also, findings showed that even though reported use varied greatly between regions, "of the 40 of 51 countries that collected data about the desire to quit, the proportion of students who reported current tobacco smoking and desired to quit exceeded 50%" (Arrazola et al., 2017).

In 2007, the WHO introduced a package of measures that included MPOWER, control of tobacco cigarette use in the Eastern Mediterranean Region, comprised of 22 high, medium, and low-income countries (WHO, 2009). The acronym is a summation of identified key areas of tobacco cigarette control: M - monitoring tobacco use and prevention policies; P - protecting people from tobacco smoke; O - offering help to quit tobacco use; W - warning about the dangers of tobacco use; E - enforcing bans on tobacco advertising, promotion and sponsorship; and R- raising taxes on tobacco. The results of this 7-year study show a "suboptimal" reduction in tobacco cigarette usage (Heydari et al., 2017). The control measures used in MPOWER are mainly based on government policy and often overlook the importance of cultural and social implications on tobacco smoking as a behavior.

Tobacco Health Impact on Adolescents

As previously stated, there is overwhelming evidence that tobacco use is harmful to the body. In fact, smoking tobacco causes damage to most organs in the human

body. Smoking-related cancers include but are not limited to the lungs, mouth, stomach, kidneys, bladder, and cervix (Kalkhoran et al., 2018). An overwhelming percent of all lung cancer cases are linked to cigarette smoking, and tobacco is the leading cause of preventable death in the United States (Kalkhoran et al., 2018; Warren et al., 2006). Smoking tobacco is also associated with emphysema, chronic bronchitis, and other lung diseases, aggravating asthma symptoms. Furthermore, usage increases the risk of heart disease and weakens the immune system. Other negative health effects of tobacco involve cosmetic impacts, such as yellowed teeth and premature skin wrinkling (Urbanska et al., 2012).

It is estimated that more than 3 million young people under the age of 18 are current smokers (National Jewish Health, 2019). Furthermore, the addiction rate for smoking is much higher than the addiction rates for marijuana, alcohol, or even cocaine. According to National Jewish Health (2019), 20% of high school students (grades 9-12) are current smokers, 6.5 % of eighth graders are current smokers, and 90% of smokers began at or before the age of 18.

Tobacco contains over 4,000 different chemicals. These chemicals cause significant physiological and psychological impairment, but nicotine is the 'major' contributor to the development of reliance. It is the primary pharmacologic component of tobacco, and its impacts are highly sought after by consumers. Its highly addictive nature is responsible for the widespread usage and difficulty with cessation.

Finally, a relatively new tobacco delivery system that is cause for alarm is the e-cigarette. Originally marketed as a safer form of tobacco use, there are growing concerns about potential dangers, including high addiction rates (Walley et al., 2019). E-cigarette experimentation and recent usage amongst U.S. middle and high school students doubled from 2011 to 2012 and continues to show an increase in popularity (Walley et al., 2019).

Evidence-Based Smoking Cessation Interventions for Adolescents

To date, the most comprehensive and promising research in tobacco cigarette cessation for adolescents' centers on cognitive behavioral approaches, more specifically, Motivational Interviewing and Cognitive Behavioral Therapy (CBT). In addition, some research shows positive results in the use of pharmacology (Peterson et al., 2016). All interventions hinge on the ability to deliver appropriate

psychoeducation regarding human development and the impact of tobacco use on the body and the mind. Finally, the delivery of appropriate interventions also must include cultural considerations.

Psychoeducation

Adolescence is a period of development marked with important challenges and changes. It is a vulnerable period of human development, noted by changes in the person's cognitive, physical, psychological, and social development. Additionally, these developmental events and changes increase the probability that youth will face a number of life decisions that may cause confusion and stress, and other difficulties in their lives (Reinherz et al., 2003)

There is evidence that many adolescents benefit from psycho-educational strategies that focus on the life skills of goal setting, problem-solving, collaboration, and the ability to obtain and even seek social support (Rageliene & Kern, 2014). As a tobacco smoking preventative among teens, psychoeducation can be used as a "non-judgmental" and "non-directive" approach to working with adolescents (Prochaska et al., 2013). Psychoeducation provides information about the risk of tobacco use but, at the same time, incorporate clinical influences that can assist in delivering the information in a manner that will be heard and received.

Sorensen et al. (2012) conducted a study examining the promotion of life skills and preventing tobacco use among low-income Mumbai Youth based on the Salaam Bombay Foundation (SBF) intervention. This study is considered the first life-skills intervention for tobacco use prevention to demonstrate the impact on youth tobacco use in India. Their literature review identified socioeconomic disparities in tobacco use, such as the higher levels of consumption among those with lower education levels and lower incomes. In addition, they found support for their hypothesis that life skills education does meet the goals of enhancing personal skills, better decision making, helping youth be better equipped to resist peer pressure, and decreasing their desire to use tobacco (Sorenson, et al., 2012, p. 5).

Motivational Interviewing

Motivational interviewing (MI) is an intervention based on communication that helps the client assess his or her own willingness to change what is perceived as negative behavior or begin engaging in what is perceived to be a positive behavior.

The focus in MI is referred to as change language (Seigart et al., 2018). The clinician must be attuned to words that indicate some level of desire for change. Unlike some interventions, MI is non-confrontational; in fact, clinicians are taught to roll with resistance. Motivational Interviewing was developed by William R. Miller and Stephen Rollnick in 1991 and is based on Cognitive Dissonance Theory. The premise of Cognitive Dissonance Theory is that when an individual faces conflicting ideas, their instinct is to resolve the conflict by choosing one idea over the other. The aim of (MI) is assist the client in determining their level of readiness to make a decision or change (Levounis et al., 2017).

Over the last decade, several studies have examined MI's efficacy and have found it effective in treating individuals with substance (including tobacco) use. Heckman et al. (2010) conducted a review and meta-analysis on 31 research trials involving MI; eight were adolescent samples. Although they noted variability in the impact of MI, the results suggest, "MI can be officious for smoking cessation, particularly among adolescents" (p. 415). Similarly, a meta-analysis of 28 MI studies from 1997-2014, conducted by Lindson-Hawley et al. (2015) found efficacy in the use of MI. However, they too noted variability in studies, specifically variability in the quality of the studies reviewed.

Cognitive Behavioral Therapy

Cognitive Behavioral Therapy (CBT) encourages clients to examine feelings and thoughts associated with a behavior. CBT is built on the premise that individuals' feelings about themselves, others, or events affect their cognition (thoughts) and then produce a corresponding behavior. CBT helps clients examine what is called automatic thoughts and schemas (core beliefs); this is accomplished through cognitive restructuring, mindfulness practice, and emotion regulation training (Cavallo et al., 2007). In addition, CBT enables the client to learn coping skills and develop a relapse prevention plan, which is important due to the highly addictive nature of nicotine.

Harvey and Chadi (2016) conducted a study review and found CBT, especially when used in conjunction with a motivation enhancement and individual therapy, to be effective in working with juveniles in smoking cessation. In addition, they stress the need for ongoing training in these interventions by health care providers.

Similarly, Celik and Sevi (2020) reviewed 20 studies that examined CBT's effectiveness in smoking cessation. Overall findings showed CBT based treatments to be highly effective in smoking cessation, especially when combined with a pharmacological aid.

Pharmacological Interventions

Pharmacological interventions for smoking cessation among adolescents currently seem less effective than with adults, but research with this population is still growing (Bailey et al., 2012; Simon et al., 2015). At present, the two main medications designed for tobacco smoking cessation are Bupropion (Wellbutrin, Wellbutrin SR, Fortivo, XL, Aplenzin and Zyban) and Varenicline (Chantix); in trials both have shown to be two times more effective in smoking cessation than placebos. However, both have warning labels for possible side effects of suicidal thoughts and behaviors in children, adolescents, and young adults, which impacts prescribing among physicians (Kim et al., 2011). The use of nicotine patches and gums has also shown some success as smoking cessation aids with this population, but again research is limited (Hanson et al., 2003).

Smoking Cessation Interventions and Cultural Consideration

Kong, et al. (2012) conducted a review of culturally targeted/tailored tobacco prevention and cessation interventions for minority adolescents by examining the theoretical construct of the Social Influence Model. Targeted interventions focus on the generalizability of interventions to minority groups, while tailored interventions focus on ensuring the unique needs of the minority group, including ethnic/cultural experiences, norms, and values, are met. Cultural targeting was categorized into two dimensions: "surface structure" and "deep structure." Surface structure matches intervention materials to the preferred characteristics of a target population such as race/ethnicity, and culturally relevant materials such as music, food, and language. The deep structure reflects the integration of cultural, social, historical, and psychological influences of tobacco use in the target populations (Kong et al., 2012).

Overall, the authors found that tobacco cessation interventions that are culturally tailored did not appear to improve quit rates among minority adolescents. The authors, however, found culturally tailored prevention interventions appeared to produce lower tobacco initiation rates among minority adolescents than the control

conditions. The authors concluded that a key component in tobacco cessation and initiation interventions for minority adolescents is developing an understanding of cultural issues such as cultural beliefs, within-group differences, and types of tobacco products used (Kong et al., 2012).

Itanyi et al. (2018) conducted a cross-sectional study of 4,332 adolescents in 8th to 10th grades in 25 urban and 24 rural secondary schools in Enugu, Nigeria, using the Global Youth Tobacco Survey. Students were asked about current tobacco use, smoking cessation, and susceptibility to smoking initiation among non-smokers. The study examined geographical, age, and sex prevalence differences. The study results show a prevalence of all types of tobacco use was higher in rural schools vs. urban schools and among boys than girls. Nearly 9 in 10 (88.1%) of all current adolescent smokers reported a desire to quit smoking and had tried quitting in the last 12 months, but almost 6 in 10 (57%) of them reported they had never received help to quit smoking. The most common sources for help to stop smoking reported in the study was from friends (16%), family member (11%), program or professional (9%), and more than one group of people (6%). This study has major implications for rural healthcare professionals to advocate for the unique needs of rural adolescents by targeting smoking prevention and cessation interventions to prevent adverse health issues.

Esquival et al. (2015) examined the impact of culture specific smoking cessation techniques as opposed to standard techniques for Hispanics. Cultural aspects of the interventions included but were not limited to concepts and symbols shared by Hispanics, language, and their belief system. Overall, the researchers did not find significant differences between the standard delivery method and the modified cultural delivery method; however, the findings did show that language is a critical factor.

Implications for Social Work Practitioners, Healthcare Professionals and Others

There is a need for global support and collaborations among countries to set up the infrastructure required to support and sustain prevention and cessation interventions. Funding for programs like these seems to be an ongoing issue, but countries must establish sustainable funding and consider innovative means such as monies from tobacco tax revenue.

Social workers can play a pivotal role in this pursuit, from policy development to delivery of the interventions. Successful multi-component programs prevent young people from starting to use tobacco in the first place and more than pay for themselves in lives and health care dollars saved. Social workers and other healthcare professionals must be part of this discussion.

Social workers and other health care professionals can work together as an interdisciplinary team to advocate for adopting a multi-pronged approach to implement strategies that comprise successful comprehensive tobacco control programs. Strategies include mass media campaigns, higher tobacco prices, smoke-free laws and policies, evidence-based school programs, social skills training, culturally targeted interventions, psychoeducation, medication, cognitive behavior interventions, and sustained community-wide efforts.

Conclusion

Globally, there are ample research findings on the risks and adverse effects of tobacco cigarette use on adolescents. Evidence exists on the disparities in strategies to address tobacco use among adolescents, particularly the youth from low socioeconomic backgrounds. Evidenced-based cessation interventions, including psychoeducation, motivational interviewing, Cognitive Behavioral Therapy, and pharmacology, have shown promise in working with adolescent tobacco use. There is a major gap in professional programs and services to address tobacco use among adolescents. There is a critical role for social workers and other healthcare professionals in advocating for prioritizing tobacco treatment and training for healthcare professionals to achieve the goals of Article 14 of the 2005 World Health Organization Framework on Tobacco Control (FCTC). It is vital for all nations to invest in youth tobacco intervention programs and training for healthcare professionals. Healthcare professionals are essential in delivering appropriate, targeted youth intervention programs at all levels of society. This concept paper attempts to shed light on global trends in tobacco cigarette use among adolescents. Continuous advocacy is needed for an ongoing discussion on the need for youth-targeted tobacco cessation interventions.

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